

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-24. (Canceled.)

25. (Currently Amended) Process for the treatment of wooden elements, said process comprising the following steps:

a) conditioning said wooden elements to reduce their moisture content; and
b) performing one of the following sequences of steps selected from the group consisting of at least the sequence of steps b1) to b4) or at least the sequence of steps bb1) to bb2);

said sequence of steps b1) to b4) at least comprising:

b1) impregnating the wooden elements obtained from step a)
with at least one water-borne wood preservative,
b2) heating the wooden elements obtained from step b1) at a
temperature of at least 51° C, to fix said wood preservative(s) in
said wooden elements;
b3) impregnating the wooden elements obtained from step b2)
with a solution comprising a cross-linkable polymer having
cross-linkable reactive groups selected from the group
consisting of an allyl group, a vinyl group, an acrylate group and
a methacrylate group, that can form a cross-linked polymer

under cross-linking condition in the absence of a thermo-initiator, and

b4) subjecting the wooden elements obtained from step b3) to thermal cross-linking condition of heat only, at a temperature of at least 51°C, in absence of a thermo-initiator to cross-link said reactive group(s);

said sequence of steps bb1) to bb2) at least comprising:

bb1) impregnating the wooden elements obtained from step a) with a mixture comprising at least one water-borne wood preservative and cross-linkable polymer having cross-linkable reactive groups selected from the group consisting of an allyl group, a vinyl group, an acrylate group and a methacrylate group, that can form a cross-linked polymer under cross-linking condition in the absence of a thermo-initiator, and

bb2) heating the wooden elements obtained from step bb1) in the absence of a thermo-initiator at a temperature of at least 51°C to fix said wood preservative(s) and to cross-link by heat only said reactive groups.

26. (Currently Amended) Process according to claim 25, wherein the process comprises the following steps:
- a) conditioning said wooden elements to reduce their moisture content; and
- b1) impregnating the wooden elements obtained from step a) with at least one water-borne wood preservative,

b2) heating the wooden elements obtained from step b1) at a temperature of at least 51° C, to fix said wood preservative(s) in said wooden elements,

b3) impregnating the wooden elements obtained from step b2) with a solution comprising a cross-linkable polymer having cross-linkable reactive groups selected from the group consisting of an allyl group, a vinyl group, an acrylate group and a methacrylate group, that can form a cross-linked polymer under cross-linking condition, and at least one water-borne wood preservative, identical to or different than the one of step b1), and

b4) subjecting the wooden elements obtained from step b3) to thermal cross-linking condition of heat only, at a temperature of at least 51°C, in absence of a thermo-initiator to cross-link said reactive group(s).

27. (Currently Amended) Process according to claim 25, wherein the process comprises the following steps:

a) conditioning said wooden elements to reduce their moisture content;

bb1) impregnating the wooden elements obtained from step a) with a mixture comprising at least one water-borne wood preservative and cross-linkable polymer having cross-linkable reactive groups selected from the group consisting of an allyl group, a vinyl group, an acrylate group and a methacrylate group, that can form a cross-linked polymer under cross-linking condition, and

bb2) heating the wooden elements obtained from step bb1) in absence of a thermo-initiator at a temperature of at least 51° C to fix said wood preservative(s) and to cross-link by heat only said reactive groups.

28. (Previously Presented) Process according to claim 26, wherein the impregnation step b1) is carried out with a solution containing a wood preservative in an amount up to 2.5% in weight.
29. (Previously Presented) Process according to claim 26, wherein the impregnation step b3) is carried out with a solution containing 5 to 12% in weight of cross-linkable polymer having cross-linkable reactive groups selected from the group consisting of an allyl group, a vinyl group, an acrylate group and a methacrylate group.
30. (Previously Presented) Process according to claim 29, wherein the solution of step b3) further comprises from 0.04 to 0.12% in weight of the wood preservative of step b1).
31. (Previously Presented) Process according to claim 27, wherein the impregnation step bb1) is carried out with a solution comprising from 2 to 5% in weight of cross-linkable polymer having cross-linkable reactive groups selected from the group consisting of an allyl group, a vinyl group, an acrylate group and a methacrylate group, from 2.0 to 2.6 % in weight of the wood preservative.
32. (Previously Presented) Process according to claim 26, further comprising a cooling step of the wooden elements obtained from step b2) carried out for a period of at least 1 to 12 hours.

33. (Previously Presented) Process according to claim 25, wherein the process further comprises after step b4) or bb2), a drying steps of the wooden elements obtained from steps b4) or bb2).

34. (Canceled)

35. (Previously Presented) Process according to claim 25, wherein the water-borne wood preservative is selected from the group consisting of Ammoniacal Copper Quat., copper azole, Ammoniacal Copper Arsenate and Chromated Copper Arsenate.

36-37. (Canceled)

38. (Previously Presented) Process according to claim 46, wherein said cross-linkable polyethylene glycol is polyethylene glycol diacrylate or polyethylene glycol methacrylate.

39. (Previously Presented) Process according to claim 38, wherein said polyethylene glycol diacrylate or polyethylene glycol methacrylate has a molecular weight between 600 and 10000.

40. (Previously Presented) Process according to claim 25, wherein the moisture content of the wooden element obtained from step a) is comprised between 15 and 35%.
41. (Previously Presented) Process according to claim 40, wherein the moisture content of the wooden element obtained from step a) is comprised between 24 and 26%.
42. (Previously Presented) Process according to claim 25, wherein the drying step a) is selected from the group consisting of kiln drying, air drying and air seasoning.
43. (Previously Presented) Process according to claim 25, wherein the amount of the wood preservative impregnated in the wooden elements is superior or equal to 9.6 kg/m³, according to a standardized assay zone for analytical purposes as defined in CSA-O80 and AWPA C-4 standards.
44. (Previously Presented) Process according to claim 25, wherein the amount of the cross-linkable polymer impregnated in at least 13 mm outer portion of the wooden elements is between 10 and 40 kg/m³ of the wooden elements.
45. (Previously Presented) Treated wooden elements obtained according to the process of claim 25.

46. (Previously Presented) Process according to claim 29, wherein the cross-linkable polymer is a cross-linkable polyethylene glycol.